SEQUENCE LISTING

<110> New York Medical College

<120> Splice Choice Antagonists as Therapeutic Agents

<130> 51230-00601

<140> 09/849,967
<141> 2001-05-08

<160> 4

<170> PatentIn version 3.3

<210> 1
<211> 1689
<212> DNA
<213> chicken

<220>
<221> misc_feature
<222> (1)..(1689)
<223> Full length cDNA sequence of chicken hnRNP A1.

<220>
<221> misc_feature
<222> (141)..(1276)
<223> Open reading frame of cDNA sequence from chicken hnRNP A1.

<400> 1
gcgtctccac ccctcagcgg gcggcggtga gtgcgccagg ccagcgccgg cgtgggaccg 60

agcgggcgtg aaggcgcgag ctgaacgctg gcacggtttc ctagatctaa aagaaaggcc 120

gagttagagt acccttccaa aatggctgct attaaggaag agagagaggt ggaagattac 180

aagagaaaaa ggaagacgat cagcacaggc catgagccta aggagccaga gcagttgaga 240

aagctgttca ttggaggtct gagcttcgag acgacggatg atagcttgag agagcacttt 300

gaaaaatggg gcacactcac ggactgtgtg gtgatgagag acccacaaac aaaacgttcc 360

agaggctttg gctttgttac ttactcttgc gtggaagagg tggatgcggc catgagcgct 420

cgaccacata aggtggatgg acgtgtggtt gaaccaaaga gagcagtttc aagggaggat 480

tctgtaaagc ctggggcgca tctcacagta aagaaaatat ttgttggtgg cattaaagaa 540

gatacagaag aatataattt aagggggtac tttgaaacat atggcaagat cgaaacgata 600

gaagtcatgg aagacagaca aagtggaaag aaaagaggct tcgcttttgt aacttttgat 660

gatcacgata cagttgataa aattgttgtt cagaaatacc atactataaa tggtcataac 720

tgcgaagata aaaaagcact ctcaaaacaa gagatgcaga ctgccagctc tcagagaggt 780

cgtgggggtg gttcaggcaa cttcatgggt cgtggaaatt ttggaggtgg tggaggaaac 840

tttggccgag gaggaaactt tggtggaaga ggaggctatg ggggtggtgg tggcggtggt 900

gggagcagag gaagctttgg gggtggtgat ggatacaacg gatttggtga tggtggcaac 960

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tatggaggtg gtcctggcta tggcagcaga gggggttatg gtggtggtgg aggaccagga   1020
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ggaggcaatt ttggaggtgg taattatgga ggcagtggaa actacaatga ctttggtaac   1140
tacagtggac agcagcagtc caattacggt cccatgaaag gtggtggcag ttttggtggt   1200
agaagttcag gcagtcccta tggtggtggt tatggatctg gaagtggaag tgggggctat   1260
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gaggaactgt aaaatctgcc acagaaggaa cgatgatcca tagtcagaaa agttactgca   1440
gcttaaacag gaaacccttc ttgttcagga ctgtcatagc cacagtttgc aaaaagagca   1500
gctattggtt aatgcaatgt agtgtcgtta gatgtacatc ctgaggtctt tatctgttgt   1560
agctttgtct ttctttttttc tttttatttt cccattacat caggtatatt gccctgtaaa   1620
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aaaaaaaaa                                                           1689
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<210> 2
<211> 378
<212> PRT
<213> Chicken

<220>
<221> PEPTIDE
<222> (1)..(378)
<223> Amino acid sequence of chicken hnRNP A1

<400> 2

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Met Ala Ala Ile Lys Glu Glu Arg Glu Val Glu Asp Tyr Lys Arg Lys
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Arg Lys Thr Ile Ser Thr Gly His Glu Pro Lys Glu Pro Glu Gln Leu
            20                  25                  30

Arg Lys Leu Phe Ile Gly Gly Leu Ser Phe Glu Thr Thr Asp Asp Ser
        35                  40                  45

Leu Arg Glu Gln Phe Glu Lys Trp Gly Thr Leu Thr Asp Cys Val Val
    50                  55                  60

Met Arg Asp Pro Gln Thr Lys Arg Ser Arg Gly Phe Gly Phe Val Thr
65                  70                  75                  80

Tyr Ala Thr Val Glu Glu Val Asp Ala Ala Met Ser Ala Arg Pro His
                85                  90                  95
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Lys Val Asp Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser Arg Glu
            100                 105                 110

Asp Ser Val Lys Pro Gly Ala His Leu Thr Val Lys Lys Ile Phe Val
        115                 120                 125

Gly Gly Ile Lys Glu Asp Thr Glu Glu Tyr Asn Leu Arg Gly Tyr Phe
    130                 135                 140

Glu Thr Tyr Gly Lys Ile Glu Thr Ile Glu Val Met Glu Asp Arg Gln
145                 150                 155                 160

Ser Gly Lys Lys Arg Gly Phe Ala Phe Val Thr Phe Asp Asp His Asp
                165                 170                 175

Thr Val Asp Lys Ile Val Val Gln Lys Tyr His Thr Ile Asn Gly His
            180                 185                 190

Asn Cys Glu Asp Lys Lys Ala Leu Ser Lys Gln Glu Met Gln Thr Ala
        195                 200                 205

Ser Ser Gln Arg Gly Arg Gly Gly Gly Ser Gly Asn Phe Met Gly Arg
    210                 215                 220

Gly Asn Phe Gly Gly Gly Gly Gly Asn Phe Gly Arg Gly Gly Asn Phe
225                 230                 235                 240

Gly Gly Arg Gly Gly Tyr Gly Gly Gly Gly Gly Gly Gly Gly Ser Arg
                245                 250                 255

Gly Ser Phe Gly Gly Gly Asp Gly Tyr Asn Gly Phe Gly Asp Gly Gly
            260                 265                 270

Asn Tyr Gly Gly Gly Pro Gly Tyr Gly Ser Arg Gly Gly Tyr Gly Gly
        275                 280                 285

Gly Gly Gly Pro Gly Tyr Gly Asn Pro Gly Gly Gly Tyr Gly Gly Gly
    290                 295                 300

Gly Gly Gly Tyr Gly Gly Tyr Asn Glu Gly Gly Asn Phe Gly Gly Gly
305                 310                 315                 320

Asn Tyr Gly Gly Ser Gly Asn Tyr Asn Asp Phe Gly Asn Tyr Ser Gly
                325                 330                 335

Gln Gln Gln Ser Asn Tyr Gly Pro Met Lys Gly Gly Gly Ser Phe Gly
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Gly Arg Ser Ser Gly Ser Pro Tyr Gly Gly Gly Tyr Gly Ser Gly Ser
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Gly Ser Gly Gly Tyr Gly Gly Arg Arg Phe
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<210>  3
<211>  320
<212>  PRT
<213>  Homo sapiens

<220>
<221>  PEPTIDE
<222>  (1)..(320)
<223>  Amino acid sequence of human hnRNP A1

<400>  3

Met Ser Lys Ser Glu Ser Pro Lys Glu Pro Glu Gln Leu Arg Lys Leu
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Phe Ile Gly Gly Leu Ser Phe Glu Thr Thr Asp Glu Ser Leu Arg Ser
            20                  25                  30

His Phe Glu Gln Trp Gly Thr Leu Thr Asp Cys Val Val Met Arg Asp
        35                  40                  45

Pro Asn Thr Lys Arg Ser Arg Gly Phe Gly Phe Val Thr Tyr Ala Thr
    50                  55                  60

Val Glu Glu Val Asp Ala Ala Met Asn Ala Arg Pro His Lys Val Asp
65                  70                  75                  80

Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser Arg Glu Asp Ser Gln
                85                  90                  95

Arg Pro Gly Ala His Leu Thr Val Lys Lys Ile Phe Val Gly Gly Ile
            100                 105                 110

Lys Glu Asp Thr Glu Glu His His Leu Arg Asp Tyr Phe Glu Gln Tyr
        115                 120                 125

Gly Lys Ile Glu Val Ile Glu Ile Met Thr Asp Arg Gly Ser Gly Lys
    130                 135                 140

Lys Arg Gly Phe Ala Phe Val Thr Phe Asp Asp His Asp Ser Val Asp
145                 150                 155                 160

Lys Ile Val Ile Gln Lys Tyr His Thr Val Asn Gly His Asn Cys Glu
                165                 170                 175
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```
Val Arg Lys Ala Leu Ser Lys Gln Glu Met Ala Ser Ala Ser Ser Ser
            180                 185                 190

Gln Arg Gly Arg Ser Gly Ser Gly Asn Phe Gly Gly Gly Arg Gly Gly
        195                 200                 205

Gly Phe Gly Gly Asn Asp Asn Phe Gly Arg Gly Gly Asn Phe Ser Gly
    210                 215                 220

Arg Gly Gly Phe Gly Gly Ser Arg Gly Gly Gly Gly Tyr Gly Gly Ser
225                 230                 235                 240

Gly Asp Gly Tyr Asn Gly Phe Gly Asn Asp Gly Ser Asn Phe Gly Gly
                245                 250                 255

Gly Gly Ser Tyr Asn Asp Phe Gly Asn Tyr Asn Asn Gln Ser Ser Asn
            260                 265                 270

Phe Gly Pro Met Lys Gly Gly Asn Phe Gly Gly Arg Ser Ser Gly Pro
        275                 280                 285

Tyr Gly Gly Gly Gly Gln Tyr Phe Ala Lys Pro Arg Asn Gln Gly Gly
    290                 295                 300

Tyr Gly Gly Ser Ser Ser Ser Ser Ser Tyr Gly Ser Gly Arg Arg Phe
305                 310                 315                 320
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<210> 4
<211> 1136
<212> DNA
<213> Chicken

<220>
<221> misc_feature
<222> (1)..(1136)
<223> Open reading frame of cDNA for chicken hnRNP A1

<400> 4

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cagcacaggc catgagccta aggagccaga gcagttgaga aagctgttca ttggaggtct    120

gagcttcgag acgacggatg atagcttgag agagcacttt gaaaaatggg gcacactcac    180

ggactgtgtg gtgatgagag acccacaaac aaaacgttcc agaggctttg gctttgttac    240

ttactcttgc gtggaagagg tggatgcggc catgagcgct cgaccacata aggtggatgg    300

acgtgtggtt gaaccaaaga gagcagtttc aagggaggat tctgtaaagc ctggggcgca    360

tctcacagta aagaaaatat ttgttggtgg cattaaagaa gatacagaag aatataattt    420

aaggggtgac tttgaaacat atggcaagat cgaaacgata gaagtcatgg aagacagaca    480
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aagtggaaag aaaagaggct tcgcttttgt aacttttgat gatcacgata cagttgataa 540

aattgttgtt cagaaatacc atactataaa tggtcataac tgcgaagata aaaaagcact 600

ctcaaaacaa gagatgcaga ctgccagctc tcagagaggt cgtgggggtg gttcaggcaa 660

cttcatgggt cgtggaaatt ttggaggtgg tggaggaaac tttggccgag gaggaaactt 720

tggtggaaga ggaggctatg ggggtggtgg tggcggtggt gggagcagag gaagctttgg 780

gggtggtgat ggatacaacg gatttggtga tggtggcaac tatggaggtg gtcctggcta 840

tggcagcaga gggggttatg gtggtggtgg aggaccagga tatggaaacc caggtggtgg 900

atatggaggt ggaggaggag gatatggtgg ctacaatgaa ggaggcaatt ttggaggtgg 960

taattatgga ggcagtggaa actacaatga ctttggtaac tacagtggac agcagcagtc 1020

caattacggt cccatgaaag gtggtggcag ttttggtggt agaagttcag gcagtcccta 1080

tggtggtggt tatggatctg gaagtggaag tgggggctat ggtggtagaa gattct 1136

<210> 5
<211> 10
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(10)
<223> Exonic splice silencer (ESS) nucleic acid sequence for hnRNP A1

<400> 5

uagggcaggc 10

<210> 6
<211> 10
<212> RNA
<213> Chicken

<220>
<221> misc_feature
<222> (1)..(10)
<223> Exonic splice silencer (ESS) nucleic acid sequence for hnRNP A1

<400> 6

uagggagggc 10

<210> 7
<211> 8
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (1)..(1)
<223> Xaa represents a Lysine or an Arginine

<220>
<221> SITE
<222> (3)..(3)
<223> Xaa represents a phenylalanine or tyrosine

<220>
<221> SITE
<222> (4)..(4)
<223> Xaa represents a glycine or alanine

<220>
<221> misc_feature
<222> (7)..(7)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> SITE
<222> (8)..(8)
<223> Xaa represents a phenylalanine or tyrosine

<400> 7

Xaa Gly Xaa Xaa Pro Val Xaa Xaa
1 5

<210> 8
<211> 31
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(31)
<223> hnRNP A1 is defined as a human hnRNP core protein.

<220>
<221> MISC_FEATURE
<222> (1)..(6)
<223> Correspond to amino acids 16 - 21 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa corresponds to amino acids 22 - 54 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (8)..(15)
<223> Correspond to amino acids 55 - 62 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa corresponds to amino acids 63 - 106 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (17)..(22)
<223> Correspond to amino acids 107 - 112 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (23)..(23)
<223> Xaa corresponds to amino acids 113 - 145 of hnRNP A1.

<220>
<221> MISC_FEATURE
<222> (24)..(31)
<223> Correspond to amino acids 146 - 153 of hnRNP A1.

<400> 8

Leu Phe Ile Gly Gly Leu Xaa Arg Gly Phe Gly Phe Val Thr Tyr Xaa
1 5 10 15

Ile Phe Val Gly Gly Ile Xaa Arg Gly Phe Ala Phe Val Thr Phe
20 25 30

<210> 9
<211> 31
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(31)
<223> hnRNP A2 is defined as a human hnRNP core protein.

<220>
<221> MISC_FEATURE
<222> (1)..(6)
<223> Correspond to amino acids 11 - 16 of hnRNP A2.

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa corresponds to amino acids 17 - 49 of hnRNP A2.

<220>
<221> MISC_FEATURE
<222> (8)..(15)
<223> Correspond to amino acids 50 -57 of hnRNP A2.

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa corresponds to amino acids 58 - 101 of hnRNP A2.

<220>
<221> MISC_FEATURE
<222> (17)..(22)
<223> Correspond to amino acids 102 -107 of hnRNP A2.

<220>
<221> MISC_FEATURE
<222> (23)..(23)
<223> Xaa corresponds to amino acids 108 - 140 of hnRNP A2.

<220>
<221> MISC_FEATURE

<222> (24)..(31)
<223> Correspond to amino acids 141 - 148 of hnRNP A2.

<400> 9

Leu Phe Ile Gly Gly Leu Xaa Arg Gly Phe Gly Phe Val Thr Phe Xaa
1 5 10 15

Leu Phe Val Gly Gly Ile Xaa Arg Gly Phe Gly Phe Val Thr Phe
20 25 30

<210> 10
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(12)
<223> hnRNP B1 is defined as a human hnRNP core protein.

Correspond to amino acids 3 - 14 of hnRNP B2.

<400> 10

Lys Thr Leu Glu Thr Val Pro Leu Glu Arg Lys Lys
1 5 10